No. 9700058

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pennsylvania Agricultural Experiment Station

WHEREAS, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE E PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE E, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUM GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BENTGRASS, CREEPING

'Seaside II'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this eleventh day of March, in the year two thousand and five.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.*

FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Pennsylvania Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
DF-1

3. VARIETY NAME
RAP 3/15/01 Seaside II ~~Creeping Bentgrass~~

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
0217 Agricultural Administration Building
The Pennsylvania State University
University Park, PA 16802

5. TELEPHONE *(include area code)*
814-865-5410

6. FAX *(include area code)*
814-863-7905

FOR OFFICIAL USE ONLY

PVPO NUMBER 9700058

FILING DATE: December 12, 1996

7. GENUS AND SPECIES NAME
Agrostis palustris

8. FAMILY NAME *(Botanical)*
Gramineae

9. CROP KIND NAME *(Common name)*
Creeping Bentgrass

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE: December 12, 1996
CERTIFICATION FEE: $ 432.00
DATE: 9/20/04

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)* *(Common name)*
Land Grant University

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
RAP 11/17/04
Dr. ~~Charles R. Krueger~~ Bruce McPheron
Associate Dean
0217 Agricultural Administration Building
University Park, PA 16802

14. TELEPHONE *(include area code)*

15. FAX *(include area code)*

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes," answer items 18 and 19 below)* ☐ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES *(If "yes," give names of countries and dates)* ☐ NO
USA, January 26, 1996 Commercial Sale

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* Charles R. Krueger		NAME *(Please print or type)*	
CAPACITY OR TITLE Associate Dean	DATE 10/17/96	CAPACITY OR TITLE	DATE

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received in** PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A, B, C, E; (3) at least 2,500 viable untrea seeds, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,450 ($300 filing fee $2,150 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practic* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Blvd., Beltsville, M 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted belo Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $300 issuance of the Certificate.

Plant Variety Protection Office
Telephone: (301) 504-5518

ITEM

16a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;

(2) the details of subsequent stages of selection and multiplication;

(3) evidence of uniformity and stability; and

(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.

16b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all oth varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;

(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences;

(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clea indicate distinctness.

16c. Exhibit C forms are available from the PVPO for most crops; specify crop kind. Fill in Exhibit C (Objective Description o Variety) form as completely as possible to describe your variety.

16d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.

16e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

17. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant may **NO** reverse this affirmative decision after the variety has been sold and so labelled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

20. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownersh or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing change of ownership or assignment is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sectio 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: See Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089.

№ - 9700058

Attachment for Application Item 20.

	PSU Release[1]	PSU PVP Application[2]	PVP Application Date[3]	First Commercial Sale
Penn A-1	08-29-95	10-17-96	11-26-96	11-30-95
Penn A-2	08-29-95	10-17-96	12-19-96	02-27-96
Penn A-4	08-29-95	10-17-96	12-19-96	01-24-96
Penn G-1	08-29-95	02-21-97	02-26-97	05-20-96
Penn G-2	08-29-95	10-17-96	12-12-96	01-10-96
Penn G-6	08-29-95	10-17-96	01-02-97	01-24-96
Seaside II	**08-29-95**	**10-17-96**	**12-12-96**	**01-26-96**

[1]PSU Release - Date Pennsylvania Experiment Station Seed Committee approved variety release

[2]PSU PVP Application - Date on PSU PVP application form

[3]PVP Application - Application date of variety by PVP office as listed in PVP Official Journal, Vol. 25, December 1997

Exhibit 16A
(Revised)

Origin and Breeding History of Seaside II

The variety Seaside II (experimental designation DF-1) was originally based on a single plant selection from the Desert Forest Country Club in Scottsdale, Arizona in 1984. Selection was made from a segregated patch approximately two feet in diameter on Green No. 8 growing in 15 year old greens originally seeded to Seaside bent. The selection was made based on the segregates density, finer texture, and darker green color compared to the widely segregated greens and determined to be the best performing by then Superintendent Edward Miller and J. M. Duich of Penn State University, the breeder.

Interest in selecting at the site was based on the recognized salt tolerance of Seaside compared to all existing bentgrass cultivars due to the salt content of irrigation water and salt accumulations in the soil under desert climate evaporation conditions. A need exists for salt tolerant bentgrasses with improved turfgrass qualities over Seaside, an ecotype non-bred variety.

The breeding method used was a polycross procedure. The single parent selection of Seaside II was crossed with experimental selections of Penn A and G followed by two generations of crossing selected sib plants of Seaside II.

The original golf course selection was cloned into eight plants, pot planted, and induced to flower in a growth chamber for six weeks. An isolated crossing block was established in the greenhouse in December 1984. Due to known near self sterility of creeping bent, several A and G experimentals were used as pollen parents, the A originated from Penncross greens and G from Penneagle. The A and G plants were fine textured and dense experimentals selected at the August National Golf Club. They were used to introduce a fine leaved texture in crossing. Approximately 250 plants from the crossing were field planted in an isolated planting in the summer of 1985. Some weaker and coarser plants were chemically rogued that fall and reselection continued next year prior to anthesis. Four plants were selected based on vigor, finer density, and uniformity of a darker green color. The four selections followed the procedure used in the breeding program: cloned, growth chamber induced to flower, and crossed with each other to best produce uniformity.

A 300 plant isolated nursery was field planted for reselection in 1987. Fifty plants were selected based on uniformity and similarity to the four selections in the first cycle of reselection and as a convenient number to work with. This nursery appeared more uniform in growth habit and a source of seed for small plot pilot turf testing which ascertained a denser and fine textured turf compared to Seaside. No record now exists of the number of more obvious off-types.

The 50 selections were cloned into three plants and sent to Oregon for evaluation under potential production state conditions. The latter was reduced to 25 clones to serve as potential breeder seed planting stock as the most uniform under Oregon conditions.

Seed from the 25 clones was used to plant a two acre isolated field for evaluation and seed increase. This field was inspected by Oregon Certification and the breeder and considered to be uniform and stable as a variety. Obvious variants were plants identified as more prostrate, more vigorous stoloniferous with lighter green foliage, and estimated to constitute approximately 0.03% of the stand. The uniformity and stability was further ascertained by certification inspection of multiple acreage fields in both the vegetative and reproductive stage.

Commercial production shall be limited to two generations, Breeder and Certified. By agreement with Bent Growers Association with proprietary production rights, all obvious variants are chemically roqued.

Several cycles of five year stands of commercial plantings have shown that Seaside II is a uniform and stable variety to the satisfaction of the breeder and Oregon Certification with no further reselection deemed necessary.

Breeder seed of Seaside II has been maintained and produced under the direction of Pure Seed Testing of Hubbard, Oregon since 1994. Approval of the variety name, Seaside II, has been cleared by the Seed Branch on May 21, 2003.

Exhibit 16B
(Revised)

Variety Distinction of Seaside II

A PVP nursery was established at University Park, Pennsylvania in 1994 consisting of 21 creeping bent varieties with three replications of 25 spaced plants. Included were Seaside II (DF-1), six new Penn State varietal releases, Penn G-1, G-2, G-6, A-1, A-2, A-4, and 13 commercial varieties. Data were collected in 1995 as shown in Table 1. This nursery was discarded due to loss of land.

A second PVP nursery was established at the Pure Seed Testing Research Farm near Hubbard, Oregon in 1995. The purpose was to better evaluate plants in the location of major seed production where growth greatly exceeds the environment in Pennsylvania. It consisted of the above experimentals and 12 commercial varieties with four replications of 25 spaced plants. This test was maintained and data collected and analyzed by Pure Seed personnel after the original PVP application which included only the Pennsylvania location. These data are shown in Tables 2 and 3. Varieties significantly different by years for Seaside II are summarized in Table 4. In this form, the most obvious differences and similarities are easily discerned.

Seaside II may be most easily distinguished from other bentgrass varieties tested by plant height, panicle length, flag leaf length, and base spread. Seaside II differs significantly from Seaside in two or three years for plant height, panicle length, flag leaf width, and number of bottom whorl branches.

In terms of multiple year significance, Seaside II is most similar to Penncross except for plant height.

Table 1. Morphological Character Measurements[1] 1995

	Plant Height (cm)		Base Spread (cm)		Panicle Length (cm)		Flag Leaf Length (cm)		Flag Leaf Width (mm)		# Bottom Whorl Branches
Seaside	40.2	Penn G-1	32.0	Seaside	8.5	Seaside	5.5	Seaside	2.8	Putter	5.0
Seaside II	37.8	Penn A-1	33.0	Cobra	8.3	Penncross	5.3	Putter	2.7	Seaside	4.7
Penn G-1	36.0	Penn A-4	34.0	Seaside II	7.8	Seaside II	5.2	Regent	2.7	Penncross	4.5
Penncross	34.3	Penn A-2	35.0	Penncross	7.8	Penn A-1	4.8	Penn A-1	2.6	Crenshaw	4.5
Penn G-2	34.3	Penn G-2	36.0	Penneagle	7.8	Penn A-2	4.8	Southshore	2.6	Procup	4.5
Penneagle	34.1	Penn G-6	36.0	Southshore	7.6	Procup	4.7	Penn A-4	2.5	Penn A-1	4.3
Pennlinks	34.0	Pennlinks	41.0	Regent	7.2	SR 1020	4.5	Penneagle	2.5	Penn G-2	4.2
Penn A-4	33.7	Cato	44.0	Pennlinks	7.1	Penn G-2	4.5	Lopez	2.5	Penn A-2	4.2
Putter	33.2	Crenshaw	45.0	Procup	7.0	Penneagle	4.4	Cato	2.5	Penneagle	4.1
Southshore	33.1	Providence	47.0	Putter	6.9	Pennlinks	4.4	Penn G-1	2.4	Seaside II	4.0
Regent	32.8	Lopez	47.0	SR 1020	6.9	Southshore	4.4	Penn A-2	2.4	Penn G-6	4.0
SR 1020	32.8	Penneagle	48.0	Penn A-4	6.6	Penn A-4	4.3	SR 1020	2.4	Southshore	4.0
Crenshaw	31.5	Procup	51.0	Lopez	6.6	Regent	4.3	Pennlinks	2.4	Regent	4.0
Procup	31.1	Putter	55.0	Providence	6.6	Providence	4.3	Seaside II	2.3	Lopez	3.9
Lopez	30.7	Regent	62.0	Penn A-1	6.6	Penn G-1	4.2	Cobra	2.3	Pennlinks	3.9
Cato	30.3	Southshore	64.0	Cato	6.5	Putter	4.1	Penncross	2.3	Penn A-4	3.8
Providence	29.8	Cobra	65.0	Crenshaw	6.4	Crenshaw	4.1	Penn G-2	2.2	SR 1020	3.8
Penn A-1	29.7	SR 1020	69.0	Penn G-2	6.2	Lopez	4.1	Providence	2.2	Cato	3.7
Penn A-2	29.5	Seaside II	72.0	Penn G-1	6.0	Cato	4.0	Crenshaw	2.1	Providence	3.6
Penn G-6	28.4	Penncross	80.0	Penn G-6	5.7	Penn G-6	3.6	Penn G-6	2.1	Penn G-1	3.6
		Seaside	82.0	Penn A-2	5.5			Procup	1.7		
LSD (0.05)	2.1		9.1		0.6		0.5		0.3		0.6

[1]Penn State University Breeding Nursery, University Park, PA. Three replications of 25 space plants each.

Table 2. Morphological Character Measurements[1] 1996

	Plant Height (cm)		Panicle Length (cm)		Flag Leaf Length (cm)		Flag Leaf Width (mm)		# Bottom Whorl Branches
Seaside II	63.8	Penn A-1	13.1	Penn G-1	9.25	Providence	4.80	Penn A-1	7.3
Seaside	63.1	Seaside	13.0	Seaside II	9.03	Seaside II	4.57	Penn A-2	7.0
Penn A-1	62.5	Southshore	12.8	Seaside	8.90	Lopez	4.53	Procup	7.0
Southshore	60.2	Crenshaw	12.3	Regent	8.47	Crenshaw	4.52	Crenshaw	6.7
Penn G-2	57.1	Cato	12.2	Procup	8.26	Penn A-1	4.45	Lopez	6.6
Crenshaw	54.1	Penn G-1	11.7	Penn A-1	7.98	Cato	4.40	Putter	6.4
Providence	53.1	Penn G-6	11.7	Putter	7.91	Procup	4.37	Penneagle	6.4
Penn G-1	53.0	Seaside II	11.6	Penn G-6	7.82	Penncross	4.32	Pennlinks	6.4
Penn A-2	52.2	Penn A-4	11.6	Cato	7.78	Penn G-6	4.17	Penn G-6	6.3
Regent	51.4	Penn G-2	11.4	Penn A-2	7.73	Southshore	4.17	Penncross	6.3
Putter	49.9	Putter	11.2	Crenshaw	7.48	Penn G-2	3.95	Providence	6.3
Lopez	47.5	Pennlinks	11.0	Penn G-2	7.43	Pennlinks	3.83	SR 1020	6.0
Penn A-4	46.7	Regent	11.0	Lopez	7.13	SR 1020	3.82	Cato	5.8
Penneagle	46.0	Penneagle	11.0	Penncross	7.06	Penn A-4	3.77	Penn G-2	5.6
SR 1020	44.3	Procup	10.8	Southshore	7.06	Putter	3.75	Regent	5.6
Procup	44.3	Lopez	10.5	Penneagle	6.87	Penneagle	3.62	Penn G-1	5.6
Penn G-6	43.2	Providence	10.2	SR 1020	6.86	Seaside	3.43	Southshore	5.5
Penncross	43.2	SR 1020	10.0	Providence	6.68	Penn G-1	2.83	Seaside II	5.4
Cato	42.3	Penncross	10.0	Pennlinks	6.50	Penn A-2	2.58	Seaside	4.8
Pennlinks	37.8	Penn A-2	9.9	Penn A-4	5.90	Regent	2.38	Penn A-4	4.6
LSD (0.05)	5.2		0.67		1.56		0.96		0.93

[1]Pure Seed Testing Research Farm, Hubbard, Oregon. Four replications of 25 space plants each.

№-9700058

Table 3. Morphological Character Measurements[1] 1997

	Plant Height (cm)		Panicle Length (cm)		Flag Leaf Length (cm)		Flag Leaf Width (mm)		# Bottom Whorl Branches
Seaside	63.2	Seaside	12.2	Seaside	7.58	Seaside	4.50	Penncross	5.18
Penneagle	59.4	Pennlinks	11.3	Providence	7.05	Penneagle	4.27	Penneagle	4.95
Penn G-1	55.9	Penneagle	11.1	Southshore	7.00	Procup	3.35	Putter	4.95
Seaside II	54.6	Crenshaw	10.7	Penn G-2	6.98	Penncross	3.30	Penn G-1	4.63
Pennlinks	53.9	Providence	10.4	Seaside II	6.97	Lopez	3.23	Seaside II	4.62
Lopez	53.6	Seaside II	10.3	Pennlinks	6.72	Penn G-1	3.12	Lopez	4.53
Penn A-4	53.5	Southshore	10.1	Crenshaw	6.68	Penn A-1	3.00	Penn A-2	4.50
Penn A-2	53.4	SR 1020	10.0	Cato	6.55	Putter	2.95	Providence	4.67
Penn A-1	53.0	Regent	10.0	SR 1020	6.40	Penn A-4	2.93	Southshore	4.42
Penn G-2	52.7	Cato	10.0	Penn G-1	6.04	Pennlinks	2.82	Crenshaw	4.37
Southshore	52.2	Penncross	9.9	Penneagle	5.77	Penn A-2	2.82	Pennlinks	4.35
Regent	51.6	Penn G-1	9.8	Penncross	5.71	Penn G-2	2.73	SR 1020	4.28
Providence	50.1	Penn G-2	9.6	Penn A-1	5.26	Penn G-6	2.70	Regent	4.17
SR 1020	49.8	Penn A-2	9.4	Procup	4.87	Cato	2.70	Seaside	4.17
Cato	49.4	Penn A-1	9.3	Penn A-4	4.82	Providence	2.67	Penn G-2	4.17
Putter	49.1	Putter	9.1	Penn A-2	4.55	Regent	2.58	Cato	4.00
Penn G-6	47.6	Lopez	9.1	Lopez	4.35	Crenshaw	2.58	Penn A-4	3.82
Penncross	47.4	Penn A-4	8.9	Penn G-6	4.29	Seaside II	2.45	Penn A-1	3.60
Procup	46.8	Procup	8.1	Regent	3.97	SR 1020	2.40	Penn G-6	3.45
Crenshaw	46.3	Penn G-6	7.9	Putter	3.83	Southshore	2.37	Procup	3.43
LSD (0.05)	2.9		0.75		0.54		0.30		0.59

[1]Pure Seed Testing Research Farm, Hubbard, Oregon. Second Year Test.

No - 9700058

9

Table 4. Varieties Significantly different from Seaside II for Listed Years 1995, 1996, 1997.

Variety	Plant Height	Vegetative Base Spread	Panicle Length	Flag Leaf Length	Flag Leaf Width	# Lower Whorl Branches	Total Years
Penn A-1	95	95	95 96 97	97	97	96 97	9
Penn A-2	95 96	95	95 96 97	97	97	96 97	10
Penn A-4	95 96	95	95 97	95 96 97	97	97	10
Penn G-1	95 96	95	95 96	95 97	96 97		9
Penn G-2	95 96	95	95	95 96			6
Penn G-6	95 96 97	95	95 97	95 97		97	9
Seaside	95 97	95	95 96 97	97	95 96 97	95 97	12
Penncross	95 96 97		96	96	97		6
Penneagle	95 96 97	95	97	95 96 97	96 97	96	11
Pennlinks	95 96	95	95 97	95 96	97	96	9
Putter	95 96 97	95	95 97	95 97	95 97		10
Southshore	95 97		95 96	95 96	95		7
Regent	95 96 97	95	95 97	95 97	95 96		10
SR 1020	95 96 97		95 96	95 96 97	95 96	96	11
Crenshaw	95 96 97	95	95 96	95			7
ProCup	95 96 97	95	95 96 97	97	95 97	96 97	12
Lopez	95 96	95	95 96 97	95 96 97	97	96	11
Providence	96 97	95	95 96	95 96			7
Cato	95 96 97	95	95	95			6
Total Years	46	16	39	35	22	14	

№-9700058

Exhibit C
(Revised)

U.S. Department of Agriculture
Agricultural Marketing Service
Science Division
Beltsville, Maryland 20705

P-9700058

OBJECTIVE DESCRIPTION OF VARIETY
BENTGRASS (*Agrostis* spp.)

Name of Applicant(s)	Variety Name or Temporary Designation
Pennsylvania Agricultural Experiment Station	Seaside II (DF-1)
Address (Street and No. or R.F.D. No, City, & ZIP Code)	**FOR OFFICIAL USE ONLY**
0217 Agricultural Administration Bldg. The Pennsylvania State University University Park, PA 16802	PVPO Number

Place numbers in the boxes (e.g. [0][8][9]) for the characters that best describe typical plants of this variety. The symbol ▲ indicates decimal.

COMPARISON VARIETIES FOR USE BELOW

1= Astoria 2= Exeter 3= Highland 4= Seaside 5= Penncross 6= Kingstown
7= Astra 8= Other Penneagle

1. SPECIES:

[2] 1= Colonial (browntop) *A. tenuis* 2= Creeping *A. stolonifera* (*A.palustris*)
3= Velvet *A. canina* ssp. *canina* 4= Brown bent *A. canina* ssp. *montana*
5= Red top *A. gigantea*

2. ADAPTATION: (0= Not Tested, 1= Not Adapted, 2= Adapted)

[2] Northeast [ ] Southeast [2] North Central [2] Pacific N. W.
[2] Other (Specify) South West

3. MATURITY (At first anthesis): Use comparison varieties

[0][4] Days earlier than [5] , Maturity same as [4] , [0][8] Days later than [8]

4. HEIGHT (Average of longest 10 shoots from soil surface to top of head):

[0][5][2] Cm Height (at maturity) Ave

[0][3] Cm Shorter than [4]
Height same as [ ]
[1][0] Cm Taller than [5]
} Comparison Variety

5. GROWTH HABIT:

[0][0][3] % Prostrate [0][9][7] % Decumbent [ ][ ] % Geniculate [ ][ ][ ] % Erect

№-9700058

6. VEGETATIVE REPRODUCTION:

[1] Rhizomes 1= Absent 2= Present [2] Stolons 1= Absent 2= Present

[ ][ ][ ] % Rhizomes [1][0][0] % Stolons

RHD 8/9/04

7. LEAF BLADE:

[3] Color: 1= Yellowish Green (Cohansey) 2= Light Green (Washington)
3= Green (Exeter) 4= Dark Green (Kingstown, Tracenta)
5= Bluish Green (Highland) 6= Other (Specify) _____

[2] Texture: (fineness)
1= Very fine (Kingstown) 2= Fine (Exeter)
3= Medium fine (Astoria) 4= Medium (Seaside)
5= Medium coarse (Virginia) 6= Coarse (Vermont)

[ ][ ][ ][ ] Stomatal density upper leaf surface (Number/mm^2)

Lower Surface: [ ][ ][ ] % Smooth [ ][ ][ ] % Rough

Upper Surface: [ ][ ][ ] % Smooth [ ][ ][ ] % Rough

Margins: [ ][ ][ ] % Smooth [ ][ ][ ] % Rough

[ ][ ] Mm Width (Average of 10) [ ][ ] Mm Narrower than [ ]
Width same as [ ]
[ ][ ] Mm Wider than [ ]
} Comparison Variety

[3][1] Mm Width (Flag leaves) [7][9] Cm Length (Flag leaves)

8. LEAF SHEATH:

[1] Anthocyanin: 1= Absent 2= Present [ ][ ][ ] % Red sheaths

9. LIGULE (Lower and middle leaves):

Shape at Apex: [0][6][0] % Acute [ ][ ][ ] % Rounded [0][4][0] % Truncate
[ ][ ][ ] % Other (Specify) _____

Pubescence: [1][0][0] % Glabrous [ ][ ][ ] % Pubescent

Margins: [0][3][0] % Entire [0][7][0] % Toothed
[ ][ ][ ] % Other (Specify) _____

[ ][ ] Mm Length

10. LEMMA:

Shape: [ ] % Lanceolate [100] % Ovate [ ] % Obovate

[ ] % Elliptic [ ] % Oblong [ ] % Other (Specify) _____

[39] Mm Width [15] Mm Length (exclusive of awn)

Color: [ ] % Buff [100] % Silvery [ ] % Other (Specify) _____

Surface: [100] % Glossy [ ] % Dull

Texture: [100] % Smooth [ ] % Punctate

Pubescence: [ ] % Glabrous [ ] % Sparse [ ] % Copious

Basal Hairs: [100] % Absent [ ] % Few [ ] % Many

[ ] % Short [ ] % Long

[ ] % Appressed [ ] % Ascending [ ] % Spreading

Awns: [100] % Absent [ ] % Few [ ] % Many

[ ] % Awn-pointed [ ] % Short [ ] % Long

[ ] % Straight [ ] % Geniculate

Awn Insertion on Lemma:

[ ] % Basal [ ] % Middle [ ] % Distal

---

11. PANICLE:

Type (in anthesis): [040] % Open [060] % Compact

Anthocyanin: [070] % Absent [030] % Present

Branches in Anthesis: [070] % Appressed [030] % Ascending [ ] % Spreading

Branches in Fruit: [050] % Appressed [050] % Ascending [ ] % Spreading

Branch Surface: [070] % Smooth [030] % Scabrous

---

12. SEED:

[88] Grams per 1000 seed

---

13. SPRING GREEN UP:

[2] 1= Early (Exeter) 2= Medium (Astoria) 3= Late (Kingstown)

---

14. ENVIRONMENTAL RESISTANCE: (0= Not tested, 1= Susceptible 2= Resistant)

☐ Cold ☐ Heat ☐ Drought ☐ Shade ☐ Other (Specify) _____

15. DISEASE RESISTANCE (0= Not tested 1= Susceptible 2= Resistant):

[2] Red Leaf Spot - Drechslera erythrospila
☐ Helminthosporium Leaf Spot (Bipolaris sorokiniana)
☐ Melting Out - Drechslera poae (Helminthosporium vagans)
[2] Dollar Spot -(Sclerotinia homoeocarpa)
☐ Pythium Blight - (P. aphanidermatum)
[1] Pythium Blight (P. ultimum)
☐ Fusarium Blight (F. roseum)
☐ Fusarium Blight (F. tricinctum)
[1] Fusarium Patch (Pink Snow Mold) (F. nivale)
☐ Powdery Mildew (Erysiphe graminis)
[1] Ophiobolus Patch (O. graminis)
☐ Stripe Smut (Ustilago striiformis)
☐ Copper Spot (Gloeocercospora sorghi)
[1] Typhula Blight (Snow Scald) (T. incarnata)
☐ Red Thread (Corticium fuciforme)
[2] Brown Patch (Rhizoctonia solani)
☐ Stem Rust (Puccinia graminis)
☐ Crown Rust (P. coronata)
☐ Leaf Rust (P. poae-nemoralis)
☐ Other _____

16. INSECT RESISTANCE (0= Not tested, 1= Susceptible, 2= Resistant):

☐ European Chafer (Amphimallon solstitialis)
☐ Garden Chafer (Phyllopertha horticola)
☐ Chinch Bug (Blissus insularis)
☐ Webworm (Crambus spp.)
☐ Armyworm (Cutworm) (Pseudaletia unipuncta)
[1] Other Black Cutworm

17. GIVE VARIETY(S) THAT MOST CLOSELY RESEMBLE THE SUBMITTED VARIETY: For the following characteristics indicate degree of resemblance (D.R.) with one of the following numbers: 1= Submitted variety is less than, lighter, or inferior to similar variety, 2= Same as, 3= More than, darker or superior, etc.

Character	Similar Variety	D.R.	Character	Similar Variety	D.R.
Growth Habit	Penncross	2	Leaf Color	Penncross	2
Awn Length			Panicle Type	Penncross	2
Seed Weight			Turf Fineness	Penncross	3
Cold Resistance	Penncross	2	Heat Resistance		
Drought Resistance			Shade Resistance		
Brown Patch	Penncross	3	Moss Resistance		
Density	Penncross	3	Salt Tolerance	Penncross	3

18. COMMENTS:

Exhibit D
(Revised)

Additional Description of Seaside II

The primary objective of the breeding program was to improve the turfgrass quality of Seaside II over Seaside but to retain salt tolerance. A salt tolerance test in greenhouse sand culture was conducted at Pure Seed Testing in Hubbard, Oregon in a salt concentration of 3000 ppm of NaCl and 5% CaCl. In this heavy salt regime 55% of Seaside II plants survived vs 64% of Seaside. All other bentgrasses in the 1996 PVP test showed 0 to 2% survival, the latter with poor growth. Significant improvement in turfgrass differences versus Seaside with the breeding and selection porcedures are as follows.

Table 5	Leaf texture: 0.74 vs1.01, 0.76 vs 0.99, 0.99 vs 0.90
Table 6	Leaf texture: 6.8 vs 4.6 rating, 1995 NTEP
Table 7	Genetic color: 6.0 vs 4.9 rating, 1994 NTEP
Table 8	Shoot density: 2058 vs 765
Table 9	Summer density: 7.3 vs 4.4 rating, 1995 NTEP
Table 10	Turf quality: 6.0 vs 4.5, 1995 NTEP
Table 11	Brownpatch rating: 7.6 vs 6.1, 1994 NTEP
Table 12	Moss percent: 3.8 vs 31.7% in 1993; 7.4 vs 26.8% in 1994

Table 5. Leaf texture[1] of putting green bent maintained at 4.0 mm as putting green turf in three locations.

University Park, PA			Augusta, GA		Turin, Italy	
	1993	1999		1993		1992
Penn G-2	0.61	0.73	Penn A-2	0.63	Penn G-2	0.63
Penn G-6	0.63	0.73	Penn A-1	0.65	Penn G-6	0.70
Penn A-1	0.63	0.75	Penn G-2	0.65	Penn A-1	0.70
FHG-1	0.63		Penn G-1	0.68	Penn G-1	0.72
Penn G-1	0.65	0.69	Penn A-4	0.69	Seaside II	0.79
Penn A-2	0.67	0.71	Penn G-6	0.71	Pennlinks	0.80
Penn A-4	0.69	0.76	Crenshaw	0.79	SR-1020	0.84
Seaside II	0.74	0.76	Cato	0.80	Southshore	0.85
Pennlinks	0.77	0.93	Seaside II	0.80	Penncross	0.85
Cato	0.80	0.84	Penncross	0.99	Providence	0.86
SR-1020	0.80	0.84			Putter	0.88
Providence	0.81	0.96			Cobra	0.90
Penneagle	0.85	0.95			National	0.90
Putter	0.89				Seaside	0.90
Carmen	0.93				Penneagle	0.95
Cobra	0.95				Emerald	0.96
Penncross	0.99	0.99				
Seaside	1.01	0.99				
Emerald	1.12					
LSD (0.05)	0.04	0.09		0.06		0.10

[1]Leaf width of second sub-tended leaf (mm).

Table 6

LEAF TEXTURE RATINGS OF BENTGRASS CULTIVARS
GROWN ON A FAIRWAY OR TEE
1995 DATA

LEAF TEXTURE RATINGS 1-9; 9=VERY FINE 1/

NAME	IA1	IL1	IN1	KS2	KY1	MB1	MD1	MI1	MO2	NJ1	OH1	RI1	UB1	VA8	WA1	WA3	MEAN
PENN G-2 (G-2)	7.0	8.7	7.0	8.3	9.0	4.3	7.7	5.7	8.3	8.0	7.7	9.0	8.0	7.0	8.0	7.3	7.6
PENN G-6 (G-6)	7.0	9.0	7.3	8.7	8.0	4.0	7.3	5.7	7.7	8.0	8.0	6.0	8.0	6.7	7.3	7.3	7.3
BAR WS 42102	7.7	8.3	8.0	9.0	7.7	4.7	6.3	5.0	7.3	7.0	8.0	6.3	8.0	6.0	8.3	7.7	7.2
CATO	7.3	8.7	7.7	8.3	7.7	4.3	6.3	5.7	7.7	6.7	7.7	6.7	8.0	5.0	8.0	7.0	7.0
SOUTHSHORE	7.7	9.0	7.3	8.7	8.0	4.0	6.0	6.0	7.7	6.3	8.0	6.0	7.7	5.0	7.7	7.3	7.0
CRENSHAW	7.7	9.0	7.3	8.3	7.3	4.0	7.3	5.3	7.3	5.7	8.0	5.7	8.0	4.7	8.0	6.3	6.9
SEASIDE II (DF-1)	7.7	9.0	7.0	8.3	8.3	3.7	7.0	6.0	7.0	4.3	8.0	7.0	8.0	5.0	7.0	7.0	6.8
PROVIDENCE	7.3	8.0	7.3	8.0	7.0	3.7	6.3	5.7	7.7	6.0	7.7	5.3	8.0	4.7	7.3	6.0	6.6
PENNEAGLE	7.3	8.0	7.3	8.7	7.0	3.7	5.7	6.0	7.0	5.0	8.0	6.0	8.0	4.0	7.7	6.0	6.6
SR 7100	6.3	9.0	7.0	5.7	7.0	2.3	6.3	5.3	8.0	6.0	8.0	6.0	7.7	5.3	7.3	7.3	6.5
ISI-AT-90162	6.3	8.3	6.7	5.3	6.7	3.7	6.0	5.0	8.7	5.0	7.0	6.3	8.0	5.0	7.0	8.0	6.4
18TH GREEN	7.0	7.7	7.0	7.3	8.0	4.0	5.7	4.7	7.7	5.0	8.0	5.0	7.0	5.7	7.7	5.0	6.4
OM-AT-90163	5.7	8.3	7.0	4.7	5.7	4.0	5.7	5.0	8.3	5.0	7.3	7.0	8.0	5.0	7.0	6.0	6.2
LOPEZ	5.7	7.7	7.0	7.3	7.7	3.3	6.0	5.7	7.3	4.3	8.0	6.0	7.0	3.7	7.0	5.3	6.2
TRUELINE	7.3	7.7	7.0	7.0	6.3	4.0	6.0	5.0	7.0	3.3	7.7	5.3	7.0	4.0	7.0	6.0	6.1
PRO/CUP	6.0	7.7	6.7	7.0	7.0	3.3	5.3	5.3	7.0	3.7	8.0	5.7	7.0	4.3	7.3	5.0	6.0
BAR AS 492	5.3	8.3	7.0	5.7	5.0	2.7	6.0	4.3	8.0	5.0	7.3	6.3	7.7	4.7	6.7	6.0	6.0
PENNCROSS	8.3	7.3	7.3	6.3	6.7	4.3	6.0	5.0	7.3	2.3	7.3	6.0	7.0	4.3	6.3	4.0	6.0
TENDENZ	5.0	8.7	6.7	4.3	7.0	3.0	5.7	5.0	7.7	4.3	7.7	4.7	7.7	5.3	6.7	4.7	5.9
EXETER	4.7	7.7	6.7	4.7	6.0	2.0	5.7	5.0	8.3	3.0	7.7	6.3	6.3	3.3	6.0	5.3	5.5
SEASIDE	6.3	7.0	5.3	3.7	5.0	2.3	5.0	4.0	7.0	1.0	7.7	4.7	6.0	2.7	4.3	2.3	4.6
LSD VALUE	1.9	0.7	1.0	0.9	0.9	1.3	0.9	0.6	0.8	1.2	0.7	1.5	0.5	1.1	0.9	1.2	0.3

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

Table 7

GENETIC COLOR RATINGS OF BENTGRASS CULTIVARS
GROWN ON A FAIRWAY OR TEE
1994 DATA

GENETIC COLOR RATINGS 1-9; 9=DARK GREEN 1/

NAME	IL1	KS2	KY1	MA1	MB1	NH1	OH1	PA1	RI1	UB1	VA8	WA1	WA3	WI1	MEAN
18TH GREEN	7.3	8.0	8.3	8.3	9.0	7.0	7.0	8.0	7.0	8.0	5.0	8.3	7.0	6.3	7.5
CATO	7.7	8.3	7.7	8.0	7.7	7.0	7.3	5.3	6.7	7.3	5.0	8.0	6.3	6.7	7.1
TENDENZ	5.3	8.0	8.3	7.3	7.3	7.0	8.0	8.7	4.0	6.0	6.7	5.7	7.3	8.0	7.0
PROVIDENCE	7.7	7.3	7.7	8.0	7.0	8.0	7.0	6.7	5.7	7.0	5.0	8.0	5.7	6.0	6.9
CRENSHAW	7.3	7.0	8.0	8.3	6.7	6.7	6.7	7.7	6.0	7.0	5.0	8.0	5.0	6.7	6.9
ISI-AT-90162	5.3	7.7	8.0	6.3	6.3	7.0	8.0	7.0	4.7	6.0	6.3	6.0	7.0	8.0	6.7
G-6	7.3	8.0	7.7	8.0	6.7	7.0	7.3	4.0	5.3	8.0	5.0	8.0	4.3	6.7	6.7
OM-AT-90163	6.0	7.7	7.7	6.7	7.3	7.0	7.7	7.0	4.0	6.0	6.7	6.0	6.0	7.7	6.7
G-2	7.0	8.0	7.3	8.0	6.7	6.0	7.0	6.0	6.0	7.7	5.7	8.0	3.3	6.0	6.6
LOPEZ	6.7	7.3	6.7	6.7	7.3	7.7	7.3	5.7	6.3	6.3	5.0	7.7	6.0	6.0	6.6
SOUTHSHORE	7.3	7.0	8.0	5.7	6.7	6.0	7.0	7.0	5.0	7.0	5.0	8.0	5.0	6.0	6.5
BAR WS 42102	7.3	8.0	8.0	6.7	6.7	7.0	7.0	4.0	5.3	7.0	5.0	8.0	4.7	5.7	6.5
TRUELINE	6.7	7.3	6.3	7.0	7.0	6.3	7.0	5.0	6.0	7.0	5.0	7.7	6.0	6.0	6.5
PRO/CUP	6.7	7.0	8.0	6.7	6.7	7.0	7.0	5.7	5.0	6.3	5.0	7.7	5.0	6.0	6.4
PENNEAGLE	7.3	7.0	7.3	6.7	6.7	7.0	7.0	5.3	5.0	7.0	5.0	7.3	4.0	6.0	6.3
PENNCROSS	7.0	7.0	7.3	7.0	6.0	7.0	7.3	5.7	5.0	6.3	4.0	7.3	5.3	6.3	6.3
SR 7100	5.7	7.0	7.7	6.3	6.7	7.0	7.3	6.0	3.7	6.0	6.3	5.3	5.0	8.0	6.3
BAR AS 492	6.3	6.3	6.3	6.0	7.0	7.0	7.3	5.0	4.0	6.0	6.3	6.3	4.3	6.7	6.1
DF-1	7.0	6.7	7.0	7.0	6.0	6.0	7.0	4.0	5.0	6.7	5.0	7.3	2.7	6.0	6.0
EXETER	7.0	5.7	6.0	4.0	6.7	7.0	6.0	4.3	4.7	5.0	5.3	6.0	5.3	6.3	5.7
SEASIDE	6.0	5.0	6.3	4.0	6.0	5.3	7.0	2.0	3.0	5.0	5.7	5.7	1.7	6.0	4.9
LSD VALUE	1.0	0.9	0.9	1.3	0.9	0.6	0.7	1.2	0.9	0.5	0.8	0.9	1.2	0.7	0.2

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

№-9700058

Table 8 Bentgrass shoot density/dm^2, Augusta, GA, and Turin, Italy.

	Augusta, GA			Turin, Italy	
	1992	1993		1992	1993
PENN A-2	2376	2392	PENN G-1	1574	2612
PENN A-1	1815	2145	PENN G-2	1080	2546
PENN G-1	1881	1996	PENN G-6	1065	2378
PENN G-2	2079	1963	PENN A-1	1075	2240
PENN A-4	1617	1917	Seaside II	1043	2058
PENN G-6	1683	1838	Southshore	--	1509
Crenshaw	1617	1419	Pennlinks	1000	1504
Cato	1254	1287	Providence	914	1425
Penncross	1122	1270	SR 1020	1017	1419
Seaside II	1419	1056	Putter	1091	1272
			Penneagle	980	1241
			Cobra	1170	1196
			National	908	1013
			Emerald	915	1010
			Seaside	591	765
LSD (.05)	180	214		258	178

Table 9

SUMMER DENSITY RATINGS OF BENTGRASS CULTIVARS
GROWN ON A FAIRWAY OR TEE
1995 DATA

DENSITY RATINGS 1-9; 9=MAXIMUM DENSITY 1/

NAME	MB1	PA1	WA3	MEAN
PROVIDENCE	8.0	8.0	7.7	7.9
PENN G-2 (G-2)	8.7	8.0	7.0	7.9
18TH GREEN	9.0	6.7	7.0	7.6
BAR WS 42102	8.0	7.3	7.3	7.6
CRENSHAW	8.7	7.0	6.7	7.4
PENN G-6 (G-6)	8.0	7.7	6.3	7.3
SEASIDE II (DF-1)	8.3	8.3	5.3	7.3
SOUTHSHORE	7.7	7.7	6.7	7.3
TRUELINE	8.3	6.7	6.7	7.2
CATO	7.7	7.0	6.3	7.0
PENNEAGLE	8.3	7.0	5.7	7.0
PRO/CUP	8.3	5.7	6.7	6.9
ISI-AT-90162	7.3	6.0	7.0	6.8
LOPEZ	7.7	6.3	6.3	6.8
BAR AS 492	7.3	6.7	5.7	6.6
PENNCROSS	8.3	5.3	6.0	6.6
SR 7100	7.0	5.7	5.0	5.9
TENDENZ	7.7	5.3	4.3	5.8
OM-AT-90163	7.3	5.3	3.7	5.4
EXETER	6.0	4.7	4.3	5.0
SEASIDE	6.7	3.3	3.3	4.4
LSD VALUE	1.1	1.1	1.5	0.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

Table 10

MEAN TURFGRASS QUALITY RATINGS OF BENTGRASS CULTIVARS GROWN ON
A FAIRWAY OR TEE AT NINETEEN LOCATIONS IN THE U.S. AND CANADA
1995 DATA

TURFGRASS QUALITY RATINGS 1-9; 9=IDEAL TURF 1/

NAME	IA1	IL1	IN1	KS2	KY1	MA1	MB1	MD1	MI1	MO1	MO2	NJ1	OH1	PA1	RI1	UB1	VA8	WA1	WA3	MEAN
* CATO	7.3	6.3	4.8	8.3	6.8	5.8	7.1	6.2	5.3	6.5	7.3	7.2	7.9	6.8	5.2	6.1	4.8	7.6	5.1	6.4
* PROVIDENCE	7.2	5.9	4.9	8.1	7.4	5.7	7.3	6.2	5.3	6.4	7.2	6.7	7.9	6.6	5.3	6.0	5.6	6.9	5.6	6.4
PENN G-2 (G-2)	6.7	5.5	3.4	8.4	7.4	5.6	7.3	7.1	5.3	5.9	6.9	6.7	7.8	6.7	5.1	5.9	4.5	7.4	5.7	6.3
* PENNEAGLE	7.2	5.7	5.1	7.5	7.4	5.3	6.9	6.1	6.1	6.8	7.2	6.3	7.8	6.7	5.4	5.3	5.1	6.4	4.9	6.3
* SOUTHSHORE	7.7	6.2	4.0	7.7	7.5	5.1	6.8	6.1	5.7	6.3	7.0	6.1	7.9	6.0	6.0	5.3	4.6	6.7	5.3	6.2
PENN G-6 (G-6)	6.7	6.5	4.1	8.0	7.3	5.0	6.7	6.5	5.3	6.4	7.0	6.5	8.0	6.6	3.5	6.1	4.4	6.5	5.3	6.1
SEASIDE II (DF-1)	6.1	6.0	4.1	7.6	7.1	4.6	6.4	6.2	5.7	6.2	7.0	5.6	7.7	6.5	6.0	5.5	5.2	6.5	4.7	6.0
* CRENSHAW	7.3	5.7	3.6	8.0	6.9	4.9	7.1	6.3	5.5	6.7	7.0	5.0	7.5	6.0	5.6	4.4	4.7	7.1	5.1	6.0
BAR WS 42102	6.9	6.0	3.7	7.7	7.0	5.0	6.8	6.3	5.4	6.8	7.1	5.3	7.7	6.1	5.3	5.0	4.2	6.7	5.2	6.0
* PRO/CUP	6.7	5.6	4.1	7.6	7.2	5.1	7.2	6.0	5.3	6.7	7.0	4.5	7.6	5.4	6.4	4.5	4.8	6.6	5.2	6.0
* TRUELINE	6.4	5.9	4.5	7.4	7.0	4.9	6.9	6.2	5.3	6.5	7.1	5.1	7.3	5.8	6.1	5.1	4.8	6.3	4.9	6.0
* LOPEZ	5.8	5.1	5.0	7.0	7.4	5.2	6.9	5.9	5.4	6.6	7.0	5.0	6.7	6.2	4.7	4.9	4.3	6.9	5.0	5.8
* PENNCROSS	6.1	5.2	5.4	7.4	7.7	4.7	6.9	6.0	5.5	6.4	6.9	4.7	6.9	5.3	3.9	4.5	5.4	6.1	4.8	5.8
ISI-AT-90162	4.9	5.3	3.1	5.1	7.5	5.4	6.8	5.7	4.9	5.8	6.6	5.1	6.1	6.3	5.9	6.3	3.5	6.5	5.8	5.6
* 18TH GREEN	6.1	5.1	2.8	8.2	4.8	4.8	8.0	6.0	4.4	5.3	7.2	3.7	7.6	5.4	4.7	3.8	3.7	6.7	4.6	5.4
BAR AS 492	4.8	4.6	3.9	6.4	6.1	4.5	5.9	5.5	5.0	5.3	5.8	4.6	6.6	5.6	5.8	5.9	3.5	6.2	5.6	5.4
* SR 7100	4.9	4.6	2.2	5.4	6.6	5.4	6.3	5.6	5.6	5.6	6.0	5.0	6.2	6.1	5.1	5.6	4.2	5.1	5.2	5.3
OM-AT-90163	4.9	4.4	3.0	5.2	7.0	4.8	6.7	5.1	5.4	5.9	6.3	4.3	6.6	5.2	6.0	5.6	3.2	5.9	5.3	5.3
* TENDENZ	4.1	3.8	2.5	4.9	6.5	5.1	6.8	4.8	4.8	5.7	6.0	3.8	5.8	5.6	5.3	5.8	3.4	5.6	4.6	5.0
* EXETER	3.6	4.0	2.3	5.3	6.0	3.6	5.4	5.0	4.7	5.1	6.2	4.0	5.2	4.3	5.3	3.5	3.5	5.9	4.2	4.6
* SEASIDE	4.7	4.1	4.4	4.8	5.8	3.6	5.4	4.9	4.9	4.8	5.6	2.1	6.5	3.4	4.7	3.2	4.1	4.1	3.8	4.5
LSD VALUE	1.1	0.7	1.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.7	1.0	0.9	0.7	0.8	0.7	0.4	0.2

* COMMERCIALLY AVAILABLE IN THE USA IN 1996

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

Table 11

BROWN PATCH RATINGS OF BENTGRASS CULTIVARS
GROWN ON A FAIRWAY OR TEE
1994 DATA

BROWN PATCH RATINGS 1-9; 9=NO DISEASE 1/

NAME	MA1	MO1	MO2	NJ1	PA1	MEAN
PROVIDENCE	9.0	7.3	8.3	8.7	9.0	8.5
DF-1	9.0	3.3	8.0	8.7	9.0	7.6
TRUELINE	8.7	3.3	8.0	8.7	9.0	7.5
CATO	9.0	3.3	7.7	8.3	9.0	7.5
G-2	9.0	2.7	8.3	8.3	9.0	7.5
G-6	9.0	2.3	7.7	9.0	9.0	7.4
18TH GREEN	8.3	2.3	8.3	8.7	9.0	7.3
LOPEZ	8.3	4.0	6.7	8.7	9.0	7.3
SOUTHSHORE	9.0	2.0	8.0	8.3	9.0	7.3
PRO/CUP	9.0	2.7	7.7	8.0	9.0	7.3
CRENSHAW	9.0	2.0	6.7	9.0	9.0	7.1
PENNEAGLE	9.0	2.7	6.3	8.7	9.0	7.1
BAR WS 42102	8.3	2.3	7.7	7.3	9.0	6.9
SR 7100	5.7	7.3	5.0	6.3	7.3	6.3
PENNCROSS	8.3	3.0	5.3	5.7	9.0	6.3
EXETER	8.3	3.7	4.7	4.7	9.0	6.1
SEASIDE	8.0	2.7	5.7	5.0	9.0	6.1
ISI-AT-90162	7.3	3.0	5.3	5.0	7.0	5.5
BAR AS 492	7.0	4.7	3.7	3.7	6.3	5.1
TENDENZ	7.3	2.0	3.0	4.0	5.3	4.3
OM-AT-90163	6.0	2.0	2.7	4.0	6.3	4.2
LSD VALUE	1.8	1.6	2.3	1.3	0.8	0.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

Table 12 Presence of moss in 1993 and 1994. Turin, Italy.

	Moss-1993 (%)	Moss-1994 (%)
PENN G-1	0.10	1.93
PENN A-1	0.05	1.14
PENN G-6	0.33	3.64
Southshore	0.72	3.67
Penneagle	2.55	5.19
PENN G-2	0.55	2.64
Putter	3.94	6.67
Pennlinks	3.19	7.19
Providence	2.86	3.00
Penncross	3.36	12.29
Seaside II	3.80	7.36
Cobra	3.58	11.19
SR 1020	4.08	8.67
National	11.17	18.81
Emerald	9.33	17.76
Seaside	31.67	26.78
Astoria	24.77	35.57
LSD (.05)	10.20	6.81

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055 EXPIRES: 12-31-0

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

Pennsylvania Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

DF-1

3. VARIETY NAME

Seaside II
Creeping Bentgrass

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

RAD 11/17/04

~~Charles R. Krueger~~ Bruce McPheron
Associate Dean
0217 Agricultural Admin. Bldg.
University Park, PA 16802

5. TELEPHONE *(include area code)*

814-865-5410

6. FAX *(include area code)*

814-863-7905

7. PVPO NUMBER

9700058

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country _____ [X] YES [ ] NO

10. Is the applicant the original breeder? If no, please answer the following: [ ] YES [X] NO

a. If original rights to variety were owned by individual(s):
Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country _____

b. If original rights to variety were owned by a company:
Is the original breeder(s) U.S. based company? If no, give name of country _____ [X] YES [ ] NO

11. Additional explantion on ownership *(If needed, use reverse for extra space):*

J. M. Duich, Professor Turfgrass Science is breeder.
Employee of applicant with rights assigned to applicant.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.